

**REMARKS/ARGUMENTS**

Reconsideration of the application is respectfully requested for the following reasons:

**Rejection of Claims 17-21 Under 35 U.S.C. §102(b)**

Claims 17-21 are rejected under 35 U.S.C. §102(b) as being anticipated by Kim (US 4,999,310). Applicant respectfully traverses this rejection since Kim fails to disclose every element of the claimed invention. Particularly, Kim fails to disclose a LED substrate having a GaP layer thereon, and a liquid phase epitaxy grown transparent layer having Zn dopants therein on said GaP layer of said LED substrate, wherein said transparent layer is composed of a semiconductor compound different to that of said GaP layer. Examiner suggests that the P-type electrode 28 of Kim is identical to the GaP layer of the claimed invention and the N-type transparent GaAlAs layer 24 is identical to the liquid phase epitaxy grown transparent layer. However, the P-type electrode 28 is formed on the N-type transparent GaAlAs layer 24 and the N-type transparent GaAlAs layer 24 is formed on the N-type GaAs substrate 21 while the liquid phase epitaxy grown transparent layer is formed on the GaP layer and the GaP layer is formed on the LED substrate. This contrary feature between the teachings of Kim and the claimed invention is still true even if the LED device in FIG. 3A of Kim is turned or rotated upside down. That is, even the LED device in FIG. 3A of Kim is turned or rotated upside down, the N-type transparent GaAlAs layer 24 of Kim is still located between the P-type electrode 28 and the N-type GaAs substrate 21 which is contrary to the liquid phase epitaxy

grown transparent layer of the claimed invention. Kim actually never discloses every element of the claimed invention. For example, the N-type transparent GaAlAs layer 24 is formed on the P-type radiative GaAlAs layer 23 which is still different to the GaP layer. Therefore, Kim actually fails to disclose every element of the claimed invention. According to MPEP § 2131 Anticipation — Application of 35U.S.C. 102(a), (b), and (c) [R-1] TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Thus Kim is insufficient to render claims 17, 19-21 unpatentable.

Rejection of Claims 22-25 Under 35 U.S.C. §103(a)

Claims 22-25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kim in view of Akaike et al.(US 2002/0036296).

This rejection is respectfully traversed because the combination of Kim and Akaike et al. fails to show all element of the claimed invention. Kim fails to disclose a LED substrate having a GaP layer thereon, and a non-GaP transparent layer having Zn dopants therein on said GaP layer formed by a liquid phase epitaxy process using a supersaturated solution. Examiner suggests that the P-type electrode 28 of Kim is identical to the GaP layer of the claimed invention and the N-type transparent GaAlAs layer 24 is identical to the non-GaP transparent layer. However, the P-type electrode 28 is formed on the N-type transparent GaAlAs layer 24 and the N-type transparent GaAlAs layer 24 is formed on the N-type

GaAs substrate 21 while the non-GaP transparent layer is formed on the GaP layer and the GaP layer is formed on the LED substrate of the claimed invention. This contrary feature between the teachings of Kim and the claimed invention is still true even if the LED device in FIG. 3A of Kim is turned or rotated upside down. That is, even the LED device in FIG. 3A of Kim is turned or rotated upside down, the N-type transparent GaAlAs layer 24 of Kim is still located between the P-type electrode 28 and the N-type GaAs substrate 21 which is contrary to the non-GaP transparent layer of the claimed invention. Therefore, Kim actually fails to disclose every element of the claimed invention. Examiner suggests that the P-type GaP substrate 20 of Akaike et al. is similar to the GaP layer of the claimed invention and the P-type GaP substrate 20 can be used to replace the P-type electrode 28 of Kim. However, even the P-type GaP substrate 20 of Akaike et al. is used to replace the P-type electrode 28 of Kim the combination of Kim and Akaike et al. still fails to show all element of the claimed invention. That is, the N-type transparent GaAlAs layer 24 of Kim is still located between the P-type electrode 28 and the N-type GaAs substrate 21 which is contrary to the liquid phase epitaxy grown transparent layer of the claimed invention even the LED device in FIG. 3A of Kim is turned or rotated upside down. Although Akaike et al. may disclose a GaP uppermost layer, Akaike et al. still fail to teach the elements which Kim does not teach. The combination of Kim and Akaike et al. is still insufficient to render the claimed invention unpatentable since the combination of Kim and Akaike et al. fails to show all element of the claimed invention according to the reasons set forth.

Moreover, Paragraphs[0005-0006] of Akaike et al. ( U.S2002/0036296 ) indicate that GaP can not be achieved between

GaP and InGaAlP series material , therefore Akaike et al. actually use wafer bonding method, etc. instead of LPE. Paragraph[0038] of Akaike et al. disclose laminating InGaP layer (uppermost layer), another epitaxy GaP layer on top of GaP starting material(not GaAs substrate) by a MOCVD process. The claimed invention uses MOCVD to grow an LED composite substrate with (not InGaP) uppermost GaP Layer and direct LPE a transparent layer on it. Kim uses LPE to grow AlGaAs LED with Ga solution which is totally different from the propose of the claimed invention.

According to MPEP § 2143.03, All Claim Limitations Must Be Taught or Suggested To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Therefore, the combination of Kim and Akaike et al. is insufficient to render Claim 22 unpatentable. Moreover, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Thus Claims 23-25 are also patentable over Kim and Akaike et al.

### Conclusion

In light of the above remarks to the claims, Applicant contends that Claims 17, 19-25 are patentable thereover. The claims are in condition for favorable consideration and Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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Response to Final Office Action dated 9 September 2005  
and Advisory Action dated 23 December 2005

**This Amendment was prepared by Applicant, and is being submitted without substantive change by the undersigned Attorney.**

Respectfully submitted,  
For: Rosenberg Klein & Lee

A handwritten signature in cursive script, reading "David I. Klein". The signature is written in dark ink and is positioned above the printed name and registration number.

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